

### Remarks

In the non-final Office Action dated October 15, 2009, prosecution has been re-opened after Appeal, with the following new grounds of rejection: claims 1-2, 4-6, 9-12, 14-18, 21 and 24-25 stand rejected under 35 U.S.C. § 103(a) over Hwang (U.S. Patent No. 6,678,511); and claims 3, 13 and 22-23 stand rejected under 35 U.S.C. § 103(a) over the '511 reference in view of Chan (U.S. Patent No. 6,920,471); claims 1-2, 4-6, 9, 11-12, 14-16, 18, 21 and 24 stand rejected under 35 U.S.C. § 103(a) over Jeanjean (U.S. Patent No. 6,954,119) in view of the '511 reference. Applicant traverses all of the rejections and, unless stated by the Applicant, does not acquiesce to any objection, rejection or averment made in the Office Action.

Applicant respectfully traverses each of the rejections for failing to objectively consider the evidence including evidence of teaching away and the differences between the references themselves as well as differences between the references and the claimed invention. Applicant submits that the evidence of record is insufficient to show that the claimed invention is obvious.

The newly presented combination of the primary '119 reference as modified by the secondary '511 reference is insufficient to establish a *prima facie* obviousness rejection. Applicant submits that the skilled artisan would not arrive at the claimed invention by relying upon the teachings of the secondary reference to modify the primary reference. It is not disputed that the '119 reference is not at all concerned with (nor suggests) designing filters to have passband ripples of nearly equal magnitude that are also out of phase with each other. The primary purpose of the '119 reference is to approximate a higher order filter by careful design of a cascade of two lower-order filters (*see, e.g.*, Col. 4:43-61). To accomplish this goal, the '119 reference teaches how to create the desired filter characteristics by selecting the theoretical values for the components such that the lower order filter has a transfer function having the poles and/or zeros that are a subset of the higher order filter (*see, e.g.*, Col. 5:5-10). In particular, the primary '119 reference teaches that this is accomplished through the careful selection of resistive, capacitive and inductive values (*see, e.g.*, Col. 5:10-15). Applicant submits that modifications of these carefully selected component-based characteristics would impermissibly frustrate the primary purpose of the primary '119 reference by moving the

poles and zeroes. “If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious.” M.P.E.P. § 2143.01 citing to *In re Ratti*, 270 F.2d 810 (CCPA 1959). Accordingly, the Examiner’s apparent suggestion to modify the filter of the ‘119 reference in some manner renders the rejection *prima facie* invalid.

Moreover, an objective reading of the references shows that the skilled artisan would not arrive at a combination that corresponds to the claim limitations as a whole. The secondary ‘511 reference teaches that given desired bandpass filter (*e.g.*, in this case the pole/zero matched bandpass filter of the ‘119 reference), ripple cancelation is implemented by the addition of a complementary bandpass filter. Neither of the references, alone or in combination, suggests modifying aspects of the primary bandpass filter to cancel ripple. Moreover, this additional complementary bandpass filter is only taught to be successful when it has an order that differs from the primary bandpass filter by much more than one. Accordingly, to the extent that the skilled artisan might seek to combine the teachings of the reference, the only proper combination would include the addition of a complimentary filter, which when viewed as a whole would not correspond to the order-based limitations of Applicant’s claimed invention.

The § 103 rejections using the ‘511 reference as the primary reference are based on a “routine experimentation” or “obvious to try” assertion that ignores the teaching-away evidence and contradicts one of the two situations, as explained in *In re Kubin*, in which the “obvious to try” standard may not be applied.

The Examiner acknowledges that the asserted ‘511 reference does not expressly teach the invention as a whole, including aspects of the claimed invention that address the problem of having passband ripples carried through a circuit by implementing a composite filter that includes, among other aspects, two cascading filters having orders that differ by exactly one. In stark contrast, the Examiner asserts an embodiment from the ‘511 reference that includes cascading filters having respective orders of nine and two or four, with teaching that optimization would be achieved, not by adjusting the orders of the filters, but rather by adjusting aspects of the amplifier and attenuator circuits in the Examiner’s relied-upon embodiment. The Examiner provides no reason why the skilled

artisan would be led along such a divergent research path involving entirely different parameters (adjustments to the filters as opposed to amplifier and attenuator circuits) and encompassing an unlimited number of possible combinations (involving all possible combinations of orders for the filters) of which the prior-art record provides a hint of success only for the respective orders of nine and two or four.

Accordingly, the Examiner's § 103 rejections are contrary to key principles in the patent law including:

- When the prior art teaches away by leading in a direction divergent from the path that was taken by the applicant, "discovery of a successful means of combining them is more likely to be non-obvious." *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (U.S. 2007); *In re Kubin* (Fed. Cir. April 3, 2009), *citing In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994).
- The "obvious to try" standard may not be applied where one would have "to vary all parameters or try each of numerous possible choices until one possibly arrived at a successful result, where the prior art gave either no indication of which parameters were critical or no direction as to which of many possible choices is likely to be successful." *In re Kubin* (Fed. Cir. April 3, 2009), *interpreting KSR*. See also M.P.E.P. § 2143(E), and *Gillette Co. v. S.C. Johnson & Son, Inc.*, 919 F.2d 720, 725 (Fed. Cir. 1990) ("we have consistently held that 'obvious to try' is not to be equated with obviousness.").

The evidence put forth by the Examiner is little more than a conclusion that orders of the filters differing by exactly one is an obvious design choice to reach a condition which is "optimum" for some unspecified end goal.

Moreover, as explained in *In re Kubin*, the "obvious to try" standard may not be applied in situations (such as here) where one would have "to vary all parameters or try each of numerous possible choices until one possibly arrived at a successful result, where the prior art gave either no indication of which parameters were critical or no direction as to which of many possible choices is likely to be successful." *See also* M.P.E.P. § 2143(E) (a requirement for showing that a combination of elements is obvious to try is that there are a finite number of identified, predictable potential solutions). The '511 reference does not provide any direction as to which of the infinite number of filter order combinations is likely to be successful. Instead, the only working filter examples shown by the '511 reference deal with a specific concave-shaped ripple that is taught by the '511 reference to be adjusted by varying the parameters of attenuator and amplifier circuits, not by varying the orders of the filters. In view of this limited disclosure, the Examiner

has not provided evidence that suggests that experimentation with such ripple characteristics would lead the skilled artisan to filters differing by exactly one and the '511 reference does not provide any direction for the skilled artisan to experiment with the orders of the filters. Thus, the experimentation suggested by the Examiner is an improper application of the "obvious to try" standard which would unduly include trying each of numerous possible choices of filter orders with no direction as to which of the many possible choices is likely to be successful.

For example, the Examiner's reasoning would be applicable to an infinite number of filter combinations because the Examiner's logic has no reliance upon teachings of the actual order of the filters. If Applicant had discovered that using filters differing in order by twenty or sixty or one million, the Examiner's argument would not change. For example, the evidence of record is the same had the Examiner instead stated that selecting the optimum number for the second filter of the '511 reference to have the order difference of twenty or sixty or one million for the purpose of cancelling all of the ripples within the passband of the first filter is considered to be a matter of design expedient for the engineer depending on the ripples of the first filter that would have been obvious at the time of the invention. No evidence is provided to suggest how a skilled artisan would work toward reaching the Examiner's conclusion. For the Examiner to maintain the rejection on the evidence provided, the Examiner would have to conclude that an infinite number of filter combinations are obvious in view of only a few concrete filter circuit examples.

Moreover, the '511 reference teaches away from experimentation involving the orders of the filters 20 and 12 as proposed by the Examiner. Consistent with the recent Supreme Court decision, M.P.E.P. § 2143.01 explains the long-standing principle that a §103 rejection cannot be maintained when the asserted modification undermines either the operation or the purpose of the main ('511) reference - the rationale being that the prior art teaches away from such a modification. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (U.S. 2007) ("[W]hen the prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to be non-obvious."). In this instance, the '511 reference teaches that the impact of the counter-ripple is adjusted, not by experimentation with the orders of the filters 20 and 12,

but by using the taught orders of the filters (*e.g.*, 9 stage and 2 or 4 stage) and varying other parameters such as the gains of the filter 12 and the amplifier circuit 11 and the attenuation characteristic of the first attenuator circuit 13. *See, e.g.*, Figure 4c and Col. 5:47-55. The '511 reference further teaches additional embodiments that involve adjusting the counter-ripple by varying parameters of amplifier 11 and attenuators 13 and 14. *See, e.g.*, Col. 6:35-63. Thus, the '511 reference teaches adjusting the counter-ripple to correct the whole passband flatness of the bandpass filter by experimenting with parameters of amplifier and attenuator circuits, not by experimentation with the orders of the filters. As such, the '511 reference expressly teaches away from experimentation involving changing the orders of the filters. Accordingly, there is no motivation for the skilled artisan to modify the '511 reference in the manner proposed by the Examiner.

The Examiner has impermissibly used Applicant's teachings as the basis for the conclusion of obviousness. In this instance, the Examiner's assertions regarding routine experimentation require that the skilled artisan impermissibly work backward from Applicant's specification. The Examiner circularly requires that the skilled artisan realize that filters differing in order by exactly one provide the advantageous features taught only by Applicant's specification. Absent Applicant's specification, there is nothing in the record that would suggest to the skilled artisan that filters differing by exactly one would be advantageous. Thus, Applicant respectfully submits that the rejections are improper and requests that they be withdrawn.

Moreover, any presumption of obviousness of ranges has been rebutted by the criticality of the claim limitations taught by Applicant's specification. As discussed in M.P.E.P. § 2144.05, even where there are overlapping ranges, the obviousness can be rebutted by a showing of criticality. Applicant's disclosure teaches that implementing a composite filter with orders of filters differing by exactly one is a critical aspect of the claimed invention. The surprising results of this specific configuration are shown in Tables 1-3. Applicant has therefore rebutted any showing of obviousness due to overlapping ranges. Accordingly, the '511 reference does not render the claimed invention obvious and the rejections must be withdrawn.

Applicant requests that the Examiner reconsider whether the evidence is more likely than not to show obviousness. Applicant has shown that to maintain the rejection

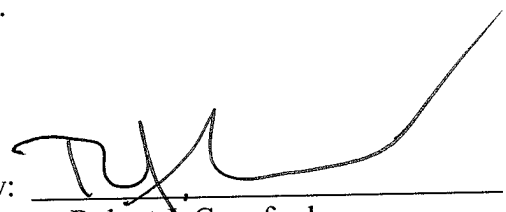
on the basis of the record the Examiner must conclude that it would have been obvious to implement any of an infinite number of different filter orders. The Examiner must further address the criticality of the ranges per M.P.E.P. § 2144.05 and explain how the limited examples presented in the '511 reference render specific and critical ranges obvious. No evidence is presented that would suggest or lead the skilled artisan to the specific, critical ranges. It is Applicant's belief that upon a review of these factors, the Examiner will agree that the preponderance of the evidence weighs in favor of the non-obviousness of the claim limitations. Accordingly, Applicant respectfully requests that the rejections be withdrawn.

In view of the remarks above, Applicant believes that each of the rejections has been overcome and the application is in condition for allowance. Should there be any remaining issues that could be readily addressed over the telephone, the Examiner is asked to contact the agent overseeing the application file, David Schaeffer, of NXP Corporation at (408) 474-9057 (or the undersigned).

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